

REMARKS

Claims and 1 and 3-13 are now pending in this application. Claim 1 is rejected. Claim 2 is previously cancelled. New claims 3-13 are added.

Claim 1 has been rejected under 35 U.S.C. § 103(a) under JP 63-132755 in view of JP 61-256961.

The present invention is directed to a method of producing an immersion nozzle for continuous casting of aluminum killed molten steel. The problem to be solved is the occurrence of cracks on the inner hole of the immersion nozzle to which a CaO containing refractory mixture is applied. The cracks are caused during burning or firing by the expansion of the refractory mixture when there is a hydration reaction between CaO and moisture generated from a resin contained in the refractory mixture. Thus, the present invention reduces the cracks by reducing the hydration reaction of the CaO.

JP 63-132755 does not recognize the problem identified in the present invention nor does it disclose nor suggest the anti-hydration treatment to prevent cracking during firing of the molded refractory mixture containing CaO. Accordingly, one of ordinary skill in the art would not be motivated to try to modify JP 63-132755 in view of JP 61-256961. Moreover, the Office Action has not identified a problem disclosed in JP 63-132755 that would be addressed by the invention of JP 61-256961. Furthermore, JP 61-256961 does not disclose or suggest the application of the anti-hydration treatment to prevent cracking during firing of a

molded refractory mixture containing CaO. Although the Office Action states that a covering layer of CaCO₃ is added in JP 61-256961 to improve resistance to slaking, the Office Action has not identified any disclosure in JP 63-132755 that slaking is a problem. Moreover, the Office Action does not identify an explanation in JP 61-256961 that identifies the cause of the slaking nor any similar cause in JP 63-132755 so as to warrant a modification of JP 63-132755 to improve resistance to slaking. The Supreme Court has made clear that a claim composed of several elements "is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art" and stated the importance of identifying "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *See KSR International Co. v. Teleflex Inc. et al.* 82 USPQ2d 1385, 1396 (2007). Thus, the mere fact that JP 61-256961 discloses a treatment to reduce slaking does not automatically make obvious to use such treatment in any other application regardless of whether there is any slaking occurring in the other application.

Additionally, the Office Action seems to suggest that a material with a 100 wt. % CaO-quality refractory inherently has CaO in the mineral phase. No showing has been made, especially since the Office Action has not demonstrated that the CaO-quality refractory is made with pure CaO. The fact that the coating layer may include a CaO-quality refractory does not mean that CaO is the only component. The Federal Circuit has stated that inherency requires that the missing material be "necessarily

present, not merely probably or possibly present, in the prior art." *See Trintec Industries Inc. v. Top-U.S.A. Corp.*, 63 USPQ2d 1597, 1599 (Fed. Cir. 2002). Moreover, the burden is on the Examiner to support the determination that an allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. *See Ex Parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Int. 1990). No inherency showing has been made by the Examiner and therefore claim 1 is patentable over the cited art.

Additionally, the Office Action has not identified where it is disclosed in JP 63-132755 of a zirconia-graphite refractory being applied to a powder-line portion of the nozzle.

Accordingly, at least for the aforementioned reasons, the present claims are patentable over the cited art.

New claims 3-13 have been added and are patentable for the reasons enumerated above.

New claims 3-13 have been added. Support for the new claims is found in, for example, the claims as filed and in the specification on the paragraph bridging pages 2-3, on page 3, third full paragraph, and page 4, seventh full paragraph.

No fee is believed due. If there is any fee due the USPTO is hereby authorized to charge such fee to Deposit Account No. 10-1250.

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited.

Respectfully submitted,
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